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ABSTRACT

The National Research Center for Career and Technical Education and the National Dissemination Center for Career and Technical Education were established at the University of Minnesota and The Ohio State University, respectively, in 1999. The centers operate as a consortium with primary and associate partners. Through the centers, the partners work collaboratively to study and improve the field of career and technical education (CTE). Consistent with the U.S. Department of Education, Office of Vocational and Adult Education's request for proposal (RFP) and the centers' proposals in response to that RFP, the centers have focused their programs of work in the following areas: accountability and program improvement; academic and vocational skills and knowledge; educational technology and distance learning methods; curriculum integration strategies; and professional development. During their first year of operation, the centers have conducted extensive research efforts in their major areas of focus and worked to make the information they collect available to CTE professionals and policymakers on the centers' Web sites and through various publications. The centers are also implementing programs designed to improve CTE professionals' leadership skills and assist them in translating research to practice. (A list of the

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centers' advisory councils members, a participant directory, and 17 endnotes are included.) (MN)

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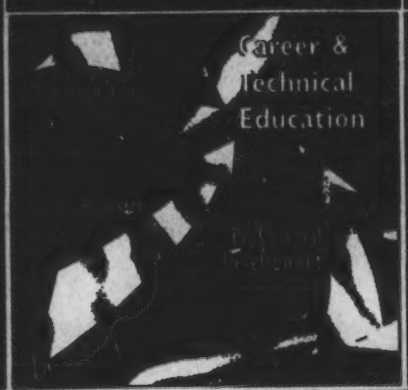
National Research Center
National Dissemination Center

National Centers for Career and Technical Education



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National Centers for Career and Technical Education

Annual Report 2000

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Executive Summary

The National Research Center for Career and Technical Education and the National Dissemination Center for Career and Technical Education were established at the University of Minnesota and The Ohio State University, respectively, in December 1999. The Centers operate as a consortium with primary and associate partners. Through the Centers, the partners work collaboratively to study and improve the field of career and technical education (CTE). The National Research Center and its partner researchers conduct research projects designed to meet that goal. As their findings are reported, the National Dissemination Center facilitates dissemination and professional development activities to ensure that this information, along with other CTE researchers' findings, reaches audiences in CTE.

The Centers' primary partners are: University of Illinois, University of Minnesota, The Ohio State University, Oregon State University, and The Pennsylvania State University. The associate partners are: Center for the Social Organization of Schools at Johns Hopkins University and National Institute for Work and Learning at the Academy for Educational Development.

Consistent with the U.S. Department of Education Office of Vocational and Adult Education's Request for Proposal (CFDA/Subprogram No. 84.051A), as well as the Centers' proposals in response to that RFP, the Centers have focused their programs of work in the following areas: accountability and program improvement; academic and vocational skills and knowledge; educational technology and distance learning methods; curriculum integration strategies; and professional development. This groundbreaking year was the Centers' first year of a five-year award period. Most of the projects and activities begun this year will continue into the second year. This report, the Centers' first annual report to Congress, shares early findings and accomplishments that resulted from the Centers' first year of research, dissemination, and professional development activities and projects.

Accountability and Program Improvement

Centers' studies show that CTE has a positive impact on keeping students in school. Researchers' analyses of the outcomes of alternative secondary curricular pathways compared academic concentrators; dual concentrators, those who pursue both academic and CTE subjects; CTE concentrators; and those who were neither academic nor CTE concentrators. Academic concentrators and dual concentrators had similar academic performances in core subjects, while CTE concentrators did not perform as well in these areas. However, CTE reduced the likelihood of dropping out of high school. Combining CTE with traditional coursework may increase student attachment to school, thus increasing the probability of completing high school.

Activities of these same students during their first full year out of high school differed significantly based on their high school concentrations. Academic concentrators, followed by dual concentrators, were most likely to indicate they were enrolled in postsecondary programs. Dual concentrators lagged significantly behind pure academic concentrators in this area, but were ahead of pure CTE concentrators and those who had fulfilled neither CTE nor academic concentrations. The CTE concentrators were by far the most likely to be workers one year out of high school.

Centers' researchers examined the outcomes of tech programs, revealing several traits of such programs and their students. Student enrollments in tech prep programs have risen in study sites since the early 1990s. Students of lower socioeconomic status may be overrepresented in tech prep programs. Participation in tech prep programs may improve students' math achievement. Tech prep programs increasingly emphasize college readiness. Tech prep participants were more likely than non-tech prep participants to be employed.

In a study of school reform and CTE, Centers' researchers determined several characteristics of schools that engage in whole school reform. Such schools are uniformly characterized by sustained, strong leadership at the building and district levels. Their infrastructure supports teachers and administration, allowing curriculum changes to occur. These successful schools carefully choose reforms based on mutually developed goals and vision, not by funding opportunities. In

the same study, the Centers found that, although CTE has been the target of many reforms, it has retained its outward historic framework at some sites. Schools still offer trade and technical programs with an emphasis on labor market needs, but the programs now focus on connecting students to the business community and to postsecondary education options, especially to two-year colleges. In other sites, however, CTE has been transformed into new models or strategies such as career academies. The academies foster curriculum integration, business and postsecondary connections, and academic achievement. This development has implications for federal CTE legislation and the emerging definition of CTE. Despite these changes and successful implementation of whole school reform that actively engages CTE, CTE programs have a lingering image problem.

Educational Technology and Distance Learning Methods

Centers' researchers examined patterns of Internet use in educational settings. Overall, they found that teachers use the Internet because of its wealth of convenient and up-to-date information, but schools do not always have the technological, training, or leadership resources to allow teachers to maximize the value of the Internet to their classes. Teachers are encouraged to use the Internet when their schools offer training, adequate hardware, technical support, and Internet access in their classrooms. Teachers are discouraged from using the Internet when their schools' computers and networks are outdated or their schools have limited access to Internet-equipped computers.

Curriculum Integration

An analysis of existing research on integrating academic and vocational education revealed that most of the previous studies focused on either the direction of the integrating activity or the scope of the effort. A Centers' ongoing research study examines the differential effects of employer, educator, or university initiation of curriculum integration, including work-based integration, in secondary schools.

Professional Development

In a Centers' study of the status of CTE professional development, researchers found that the educational reform movement has had substantial impact on the curriculum and teaching methods. Most CTE teacher educators felt that educational reform affected their preservice programs, especially in curriculum and teaching methods, more than the inservice programs. Despite limited interest in web-based courses, traditional approaches such as university coursework and seminars were perceived to be most effective and most used in practice. Most teacher educators were not convinced that web-based course delivery is effective for preservice teacher preparation. CTE teacher educators were divided over the effectiveness of increasing standards for preservice programs, although most felt there was a positive impact. Approximately 75 percent of the teacher preparation programs require a 2.5 or higher GPA for admission. Today's CTE teacher educator is most likely to be a 50-year-old white male who holds a doctorate.

Improving Practice

As the Centers gather and process information, it is made available to CTE professionals and policymakers on the Centers' website and through various publications. Through their website, the Centers provide helpful, accessible information on the latest research. The Centers' publications include *Career Tech Correlations*, a quarterly newsletter; *In Brief*, produced by the Information Synthesis Project; and *Highlight Zone*, which discusses the implications for the practice of research. All of these publications are posted on the Centers' website.

The Centers conduct programming designed to improve the leadership skills of CTE professionals. The Centers established a Professional Development Academy to develop the leadership capability of CTE practitioners and to assist them in translating research to practice. Participants attend regional conferences where they discuss key CTE issues. Also, a yearlong National Leadership Institute provides participants with an opportunity to develop their leadership skills and knowledge.

The Centers pinpointed some successful CTE programs to serve as examples for other programs. Through an extensive, rigorous process that included on-site reviews, the Centers selected a number of secondary and postsecondary CTE programs as exemplary and as promising. Both categories of programs are featured on the Centers' website, in the newsletter, and in numerous other publications.

The Centers' Repository for Academic, Employability, and Skill Standards is a database that enables the CTE community to access information on several different kinds of standards for CTE practitioners and students. It is accessible through the Centers' website.

The Centers provide personalized responses to all inquiries received by telephone or e-mail. In the calendar year 2000, the Question & Answer service received approximately 4,000 requests for information and distributed over 8,000 copies of publications in electronic or paper format.

Introduction to the National Centers for Career and Technical Education

The National Research Center for Career and Technical Education and the National Dissemination Center for Career and Technical Education were established at the University of Minnesota and The Ohio State University, respectively, in December 1999. The University of Minnesota and The Ohio State University serve as the Centers' fiscal agents and primary liaisons with the U.S. Department of Education.

The Centers operate as a consortium with primary and associate partners. This consortium brings together resources that are needed to address the research, professional development, and dissemination priorities that are necessary to improve the quality of this nation's career and technical education programs in secondary and postsecondary institutions. The primary partners represent the United States' premier vocational education research programs and providers of career and technical teacher, administrator, and counselor education, both on the undergraduate and graduate levels. The associate partners contribute nationally recognized expertise to the improvement of workforce education programs and policies.

Through the Centers, the consortium partners work collaboratively to study and improve the field of career and technical education (CTE). The National Research Center and its partner researchers conduct research projects designed to enhance the knowledge base and understanding of CTE professionals and policymakers. As their findings are reported, the National Dissemination Center

facilitates dissemination and professional activities to ensure that this information, along with that reported by others conducting research in CTE, reaches members of the CTE community.

The Centers were authorized by the Carl D. Perkins Vocational and Technical Act of 1998 (P.L. 101-392) and were awarded funding through a Request for Proposal (CFDA/Subprogram No. 84.051A) issued by the U.S. Department of Education's Office of Vocational and Adult Education. This report is being submitted to Congress to meet requirements specified in Sec. 114 (c)(5) and (6) of the Act. It shares the early findings and accomplishments that resulted from the Centers' first year (December 1, 1999–December 31, 2000) of research, dissemination, and professional development activities and projects. This ground-breaking year was the Centers' first year of a five-year award period.

Most of the projects and activities begun this year will continue into the second year of programming.

Primary Consortium Partners:

University of Minnesota

The Ohio State University

University of Illinois

The Pennsylvania State University

Oregon State University

Associate Partners:

Center for the Social Organization of Schools at Johns Hopkins University

National Institute for Work and Learning at the Academy for Educational Development

The Centers' Vision, Mission, and Commitment

Vision

Career and technical education (CTE) programs are an integral part of public education. These programs are designed to educate about, through, and for careers. The National Centers for Career and Technical Education, as primary sources of research-based information and professional development activities in this field, will significantly impact the quality of knowledge and understanding necessary to advance CTE programs in the United States.

Mission

The mission of the Centers is to generate knowledge and understanding of CTE and to be a primary source of accessible information and innovative professional development in order to improve secondary and postsecondary CTE in the United States.

The Centers' Commitment

The Centers' programs and activities have been designed to improve the educational experience of students and teachers. They're intended to

- improve student achievement;
- expand the fundamental knowledge and understanding of CTE;
- foster research, development, and evaluation to improve practice in the classroom at secondary and postsecondary levels;
- facilitate the transition from secondary to postsecondary education;

Our Functions:

Research

Dissemination

Professional Development

- promote excellence and equity in education;
- prepare all students for substantial and rewarding employment throughout their careers.

Implementing the Centers' Vision

The Centers have agreed on three important principles to guide the implementation of the vision, mission, and commitment identified in the previous section.

1. Use of practitioner-driven approaches in all stages of research projects and dissemination and professional development projects and activities
2. Development of a national program that reflects the strengths and needs of diverse practitioners across a broad range of geographic, socioeconomic, and cultural settings
3. Presentation of a balanced research, dissemination, and professional development program for secondary and postsecondary practitioners and institutions

Important strategies used by the Centers to remain focused on these principles include the appointment of an advisory council, the establishment of a coordinating team, and the development of a need-sensing system.

Centers' Advisory Council

Currently, fourteen members serve on the Centers' Advisory Council. Council membership includes representation from the major professional associations in the field, employers, organized labor, school administrators, CTE teacher educators, equity and minority advocates, counselors, and vocational student organizations.

The Advisory Council's work covers a broad scope of activities. Advisory Council members serve as Center liaisons with specific CTE practitioner and policy groups and organizations. They participate in the Centers' research, dissemination, professional development, technical assistance, and need-sensing activities. Members also advise the Centers on priorities of the field for research, dissemination, professional development, and technical assistance

The Centers' Principles:

- **Balanced program of research, dissemination, and professional development**
- **Focusing on problems of national significance**
- **Meeting the needs of diverse practitioners**
- **Practitioner-driven**

Centers' Advisory Council Duties:

- **Serving as a liaison with constituent groups**
- **Advising on priorities**
- **Identifying trends and issues**

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Coordinating Team Duties:

- **Providing general oversight of projects and activities**
- **Representing the Centers with key groups**
- **Participating in need sensing**

activities. They review and advise on the Centers' programs of work as they are constructed. Finally, they assist in the identification of emerging trends and issues in CTE.

Coordinating Team

The Coordinating Team ensures that the Centers have a coherent and sustained program of research, dissemination, and professional development in CTE. The Research Center and the Dissemination Center coordinate their programs through this body. Each primary partner has a site director who serves on the Centers' Coordinating Team. The site directors have several functions in addition to representing their institutions on the team. They monitor project and financial reports, provide general oversight of site projects and activities, represent the Centers with key constituent groups, and participate in need-sensing activities.

Need-Sensing System

A priority of the Centers is to have their work remain relevant to the needs of CTE practitioners and policymakers. The Centers have developed several ways to stay informed of the needs of practicing CTE professionals.

- Analysis of requests received by the Question and Answer Service
- Summaries of discussions on the CAREER TECH listserv
- Participation in CTE professional meetings and conferences
- Formation of a need-sensing network with membership from various state-level agencies and organizations, business and industry, organized labor, secondary and postsecondary institutions, and representatives from racial and ethnic groups

Centers' Exhibits:

- **12 national and state conferences**
- **8,500 exhibit contacts**

Centers' members participated in appropriate conferences, meetings and forums to represent the Centers and to hear ideas and concerns of CTE leaders and practitioners. In addition, Centers' researchers participated in conferences and meetings where they presented their work. Personal contact was also provided through the Centers' exhibit at 12 national and state professional conferences. Centers' personnel were always present at the exhibit to answer questions and distribute publications.

What the Centers Have Learned

Consistent with the U.S. Department of Education Office of Vocational and Adult Education's Request for Proposal (CFDA/Subprogram No. 84.051A), as well as the Centers' proposals in response to that RFP, the Centers have focused their programs of work in the following areas:

- accountability and program improvement;
- academic and vocational skills and knowledge;
- educational technology and distance learning methods;
- curriculum integration strategies;
- professional development.

In the sections that follow, the Centers' work will be reviewed in the context of the focus areas identified above. Key findings from the Centers' projects and activities to date are summarized and services provided to their constituent groups are described.

Accountability and Program Improvement

The Centers' researchers reviewed literature on accountability and CTE program improvement. They also examined outcomes associated with tech prep programs; the post-high school labor market and education outcomes associated with different patterns of CTE participation in high school; and the impact of school reform on CTE. The Centers produced several syntheses of literature addressing standards and accountability. In these syntheses, authors examined the following:

- the challenge of defining standards and the inconsistencies that presently exist from state to state;
- the promise of technology in assessment;

- the academic and economic benefits of CTE;
- the issue of credentials in relation to practitioners' preparation of students for the workplace.

Centers' researchers also examined the changing nature of tech prep programs.[1] The examination of the outcomes of tech prep programs revealed the following findings:

- Student enrollments have increased since the early 1990s, rising to about 15 percent of students in study sites.
- Evidence suggests that students of lower socioeconomic status are overrepresented in tech prep.
- There is some indication that participation in tech prep has improved math achievement, as measured by increasing completion of Algebra I and II by high school graduation.
- Tech prep programs are increasingly emphasizing college readiness. Sixty-five percent of tech prep participants enrolled in some form of postsecondary education within three years of high school graduation.
- Tech prep participants were more likely than non-tech prep participants to be working within one to three years after high school. Of those working in both groups, tech prep participants were more likely to be working full time. Preliminary findings suggest that tech prep participants enjoy differential wage increases over time and also acquire more highly skilled and technical jobs.

In studies of outcomes of CTE participation in high school, Centers' researchers looked at the performance of high school students as well as the experiences of recent high school graduates.[2] Analyses of the outcomes of alternative secondary curricular pathways compared academic concentrators; dual concentrators, those who pursue both academic and CTE subjects; CTE concentrators; and those who were neither CTE nor academic concentrators. They showed that academic performance in core subjects was similar between academic concentrators and dual concentrators. CTE concentrators trailed both groups by a significant amount in this area. However, CTE had a positive effect in reducing

the likelihood of dropping out of high school. Combining CTE with academic coursework may increase student attachment to school, thus increasing the probability of completing high school.

Activities of these same students during their first full year out of high school differed significantly based on their high school concentrations.[3] Academic concentrators were most likely to indicate they were enrolled in postsecondary education. The CTE concentrators were by far the most likely to be purely or primarily workers, as opposed to postsecondary students. Dual concentrators ranked second in their likelihood of being purely or primarily postsecondary students. They lagged significantly behind pure academic concentrators in this area but were ahead of pure CTE concentrators and those who had fulfilled neither CTE nor academic concentrations.

In a study of school reform and CTE, Centers' researchers identified characteristics of schools that successfully engage in whole school reform. Schools that are able to move beyond tech prep and engage in whole school reform are uniformly characterized by sustained strong leadership at the building and district level.[4] A second characteristic of these schools is a framework that allows education reform to occur. Researchers concluded that curriculum changes will not work without an infrastructure that supports teachers and administration. In addition, successful schools carefully choose reforms; their choices must be based on a mutually developed vision of where the school wants to be rather than by funding opportunities. Finally, although some reform efforts are recommended for adoption in toto, the more successful schools seem to have emphasized elements of the reform that fit their own vision and context.

In the same study, Centers' researchers found that, although CTE has been the target of many reforms, it has retained its outward historic framework at some sites.[5] That is, schools still offer industrial "shops," agriculture, business, or trade and technical programs with an emphasis on labor market needs. While they may not look different, these schools' programs now emphasize connecting young people to the business community and to postsecondary education options, especially to two-year colleges. In other sites, however, CTE has been transformed into new models or strategies. For example, academies have emerged as

a favored strategy to foster curriculum integration, business and postsecondary connections, and academic achievement. This development has implications for federal CTE legislation and the emerging definition of CTE. Despite these changes and the successful implementation of whole school reform that actively engages CTE, CTE programs have a lingering image problem. There is an ongoing perception that CTE offers an inferior curriculum, appropriate only for those students who cannot meet the demands of the college preparatory program. Yet today, many view career and technical education as a dumping ground for problem and/or low achieving students.[6]

Centers' research revealed an ongoing secondary school/community college articulation issue.[7] Formal articulation agreements do not appear to be easing the transition to postsecondary education. Transcripts often do not highlight articulated credits, and students often are not told how to take advantage of the credits they earned. Centers' researchers also find that community colleges, which depend on student completion of programs for full funding, are losing their computer and high-tech students to businesses when they have completed only part of their programs.

Academic and Vocational Skills and Knowledge

Centers' researchers found that, in concert with vocational education reform and comprehensive school reform, schools have begun to implement more and varied forms of career development activities.[8] These activities can be classified into four categories: (1) work-based career interventions; (2) advising interventions; (3) introductory career interventions; and (4) curriculum-based career interventions. Centers' researchers found that career development activities are largely adult-controlled, school-based, and individually delivered. Future research in this area will seek to relate these interventions to changes in positive student outcomes.

To provide more up-to-date and accessible information, the Centers developed the Repository for Academic, Employability, and Skill Standards.[9] This web-based, searchable electronic library stores and provides links to academic, employability, and skill standards. The local, state, and national standards can be used by career and technical educators for curriculum development, assessment, and

accountability purposes. The Repository for Academic, Employability, and Skill Standards can be accessed through the Centers' website.

Educational Technology and Distance Learning Methods

Early research shows that the Internet enhances teaching and learning, but, at the same time, it makes teachers' responsibilities more complex.[10] As in the Centers' research on school reform, they find that leadership in the school system affects the use of the Internet in schools. At schools where the leaders are highly committed to technological integration or where a strategic approach to implementing integration is used, technology is more thoroughly and successfully integrated.

Centers' researchers discovered certain opportunities, patterns, and barriers related to Internet use.[11] Overall, they found that teachers use the Internet because of its wealth of convenient and up-to-date information, but schools do not always have the technological, training, or leadership resources to allow teachers to maximize the potential of the Internet in their classes.

Specifically, researchers found the following:

- Use of the Internet does not dramatically transform teaching; rather, it serves as a tool within the structure of teaching already in place.
- Schools' Internet access appears to be major source of access for students who do not have Internet access at home.
- Teachers use the Internet because they view it as a current, convenient, realistic source of material that is accepted and demanded in society.
- Teachers are encouraged to use the Internet when their schools offer training, adequate hardware, technical support, and Internet access in their classrooms.
- Teachers are discouraged from using the Internet when their schools' computers and networks are outdated, slow, or unreliable, or their schools have limited access to Internet-equipped computers. They are also discouraged by

filters, the overabundance of information on the Internet, and websites with little content.

- Schools do not always have the resources to acquire the equipment and infrastructure necessary for technological integration.

Curriculum Integration Strategies

The Centers studied curriculum integration through a variety of research synthesis and research project activities.

The Centers performed an analysis of existing research that revealed that little has been written about the drivers or catalysts behind various curriculum integration efforts.[12] Most of the previous studies focused on either the direction of the integrating activity (e.g., horizontal or vertical) or the scope of the effort (e.g., a single class, a sequence of courses, or an academy or school within a school). With the exception of a number of curriculum integration efforts developed within the context of Tech Prep consortia, curriculum integration models driven by postsecondary institutions were particularly difficult to find.

In a separate study related to curriculum integration, Centers' researchers found that some of the key challenges in developing new curriculum designs for CTE are shared by both secondary and postsecondary programs, while others are more unique to only one level.[13]

One challenge for CTE programs at both the secondary and postsecondary levels is to ensure that CTE functions as a single learning system; for example, secondary and postsecondary CTE programs should operate as a coherent and connected system.[14] Another challenge is promoting resource sustainability.

Other challenges are particularly important to secondary level programs.[15] At this level, for example, CTE practitioners must try to develop coherent and cohesive programs that include multiple purposes with emphasis on CTE and academic outcomes and that meet the needs of all students. The image of CTE continues to be a barrier to attracting students and securing the support of parents, teachers, counselors, school administrators, and business leaders.

A different set of challenges faces postsecondary programs.[16] These challenges include attracting and retaining faculty; building and maintaining alliances with the community to enhance learning opportunities; and developing leadership, as needed skills are identified and as an effective administrative leadership cadre for present and future postsecondary CTE is created.

Professional Development

A major focus of the Centers' first year of work was in the area of professional development. Centers' researchers synthesized trends in professional development and began two separate initiatives that examine the status of CTE teacher education programs and identify dissemination strategies effective in meeting teachers' information needs.

The Centers prepared and disseminated a synthesis of recent trends in professional development and identified some implications for designing learner-centered professional development programs for CTE. In the Centers' study of CTE teacher education programs, researchers found several trends:

- The number of CTE teacher preparation programs has declined over the last ten years. Land grant and non-land grant public universities tend to have a larger number of CTE teacher preparation programs at both the preservice and inservice levels than private and church-related schools.
- Approximately 75 percent of the teacher preparation programs required a 2.5 or higher GPA for admission.
- The educational reform movement has had substantial impact on the curriculum and teaching methods. Most CTE professionals felt that educational reform affected their preservice programs more than the inservice programs. The areas of greatest perceived change due to legislation were curriculum and teaching methods in the preservice programs.
- Today's CTE teacher educator is most likely to be a 50-year-old white male who holds a doctorate.
- Despite interest in web-based courses, traditional approaches such as university coursework and seminars were perceived to be most effective and most

used in practice. Most teacher educators were not convinced that web-based course delivery is effective for preservice teacher preparation.

- CTE teacher educators were divided over the effectiveness of increasing standards for preservice programs, although most felt there was a positive impact.

The continued learning of CTE faculty once in the classroom depends on effective dissemination of information.[17] Centers' researchers found that the nation's CTE dissemination system has been almost exclusively "producer-driven." Like the rest of the educational field, it is not only complex but also rather disorganized; therefore, it is not necessarily user-friendly. They also found that there is a latent demand for research information among practitioners that is potentially very great. The main barriers to knowledge use, at least in CTE, are not at the level of individual resistance. They lie in the rigidities induced by institutionalized organizational fields, organizational designs that do not foster learning, and leadership agendas that are not consistent with the research findings. These problems suggest that research utilization involving sustained interaction between researchers and practitioners may increase the impact of research by enlarging the field of CTE communication systems. Thus ongoing researcher and practitioner interaction should be included in any redesign of a school or technical college.

Several other ideas are key in successful information dissemination. For example, elaborate infrastructures are not always needed to ensure the incorporation of new ideas in practice. Also, dissemination systems should include practitioners as partners, incorporate action research, and translate information to useful knowledge.

Improving Practice

As the Centers gather and process information, they make it available to CTE professionals and policymakers. The Centers also provide a number of additional services to the field. The goal of the information they disseminate and the services they offer is to improve the practice of CTE professionals. Following is a brief description of the Centers' services.

Website

The Centers continually seek better ways to communicate with all those concerned about CTE. They recognize that information technology has grown deep roots within the U.S. economy and within our society. We are now in a situation where information and tools for professional development must be available twenty-four hours a day, seven days a week. Through their website, the Centers provide access to information that is vital to improving program design and delivery. Research-based information and help is available at www.nccte.com.

- News
- Project Updates
- Event Calendar
- Publications
- Question & Answer Service
- Professional Development Activities
- Leadership Institute
- Regional Conferences
- Exemplary Programs
- Research Findings
- Works-in-Progress
- Repository for Academic, Employability, and Skill Standards
- Bits & Bytes – Daily CTE Facts
- Speaker Series

Publications

The Centers publish a quarterly newsletter, *Career Tech Correlations*, which provides information about the Centers' activities and connections to others in the field. The newsletter was published four times in the calendar year 2000, and

nearly 50,000 copies were disseminated. To make research findings more available to teachers, administrators, and policymakers, the Information Synthesis Project produced 10 *In Briefs* on topics identified as of high concern from need-sensing efforts. *In Briefs* produced in Year One were:

- Work Force Information and CTE
- CTE in Urban Schools
- CTE: A New Look
- Professional Development in CTE
- The Workforce Investment Act
- Technology and Assessment
- Integrating Science Education and CTE
- Web-Based Training and Constructivism
- Career Academies
- Standards: An Embarrassment of Riches

Research-based publications include:

Career Tech Correlations

In Briefs

Highlight Zones

Information Papers

The two-page *In Briefs* summarize the key findings relative to the topic and list selected resources for more in-depth information. This project also produced two *Highlight Zone* publications that expanded discussions of the implications of research for practice. *Highlight Zones* produced in Year One were:

- Credentials: One Size Fits All?
- Career Development Issues Affecting Secondary Schools

All of these publications are also posted on the Centers' website.

Professional Development Academy

The Centers have established a Professional Development Academy with two major goals: (1) to assist CTE policymakers and practitioners in translating research to practice and (2) to develop the leadership capability of career and technical educators. The goals are being achieved through two major types of activities. Through a series of regional conferences, research findings are disseminated and issues critical to CTE are shared and discussed. Participants have the opportunity to develop action plans for improving the quality and delivery of CTE. Also, a yearlong National Leadership Institute provides participants with an opportunity to develop their leadership skills and knowledge.

Schedule of Conferences

LOCATION	DATES	SUB-THEMES
Reston, VA	September 28-30	• Accountability/Assessment • Career Development
Denver, CO	October 4-6	• Accountability/Assessment • Credentialing Workers
Monterey, CA	October 17-19	• New CTE Models • Career Development
Atlanta, GA	October 25-27	• Credentialing Workers • New CTE Models
Chicago, IL	November 8-10	• Technology/Distance Education • Tech Prep

Identifying Exemplary and Promising Programs

During the Centers' first year of work, they selected a number of successful secondary and postsecondary CTE programs to serve as examples for other programs. By sharing information about these programs, they hope to help CTE practitioners and researchers around the country identify the components of high-quality CTE programs.

After an extensive, rigorous process that included an on-site review, the Centers selected four secondary and two postsecondary CTE programs as exemplary and twenty secondary and six postsecondary CTE programs as promising. The programs in both categories were selected from over 140 nominations for the exemplary program designation.

The exemplary and promising programs were evaluated based on four main sets of criteria. The programs had to be of overall high quality, upholding clear and relevant learning goals that conform to recognized standards. They had to maintain educational significance on individual and societal levels. The programs had to be able to produce evidence of their success. Finally, the programs had to be replicable in other educational settings. Both the exemplary and promising programs are featured on the Centers' website, in the newsletter, and in numerous other publications.

Exemplary Programs for 2000

Secondary:

Culinary Art & Hospitality Services
Great Oaks Institute Of Technology and Career Development

Digital Design
Cuyahoga Valley Career Center

Tech Prep Electronics Technology
Pioneer Career and Technology Center

Welding Technology Fabrication
Vantage Career Center

Postsecondary:

Associate Degree Nursing
Brevard Community College

Telecommunications
Central Technology Center

Repository for Academic, Employability, and Skill Standards

The Repository for Academic, Employability, and Skill Standards serves as a one-stop location for collecting, formatting, and cataloging a wealth of information with immediate utility for local secondary and postsecondary practitioners, state-level governing boards, and other interested parties. It stores and provides links to several kinds of skill standards. The Repository for Academic, Employability, and Skill Standards database is accessed through the Centers' website.

Question and Answer Service (Q & A)

The Centers provide personalized responses to all telephone or e-mail inquiries. In the year 2000, the Q & A service received approximately 4,000 requests for information and distributed over 8,000 copies of publications in electronic or paper format.

Technical Assistance Network

Based on the Centers' initial need-sensing activities, they developed a Technical Assistance Network. The intent of this network was to identify and refer professionals who could provide services to institutions and agencies in CTE. However, very few individuals have applied to provide such services and even fewer requests for the services have been received.

Outlook for the Future

Many of the projects and activities begun in Year 1 will continue during Year 2. The Centers' researchers and disseminators will continue projects and activities related to accountability and program improvement, curriculum integration, and academic and vocational skills and knowledge. The Centers will initiate several new projects and activities. The new work will focus on such topics as alternative certification for CTE teachers, the impact of CTE on student achievement and transition to the labor market, the influence of industry sponsored credentials in information technology, and a national leadership development institute. The Centers look forward to their second year of operation and the challenge of continuing to be a primary source of research-based information and professional development activities designed to significantly impact the quality of knowledge and understanding necessary to advance CTE programs in the United States.

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Notes

[1] Debra D. Bragg, "The Community College and Beyond: A Longitudinal Analysis of Postsecondary Education and Employment Outcomes for Tech-Prep Participants and Non-Participants"

[2] Steven Plank, "Transitions Through Schooling and Into the Labor Force"

[3] ibid.

[4] Samuel Stringfield and Marisa Castellano, "What Makes It Work: Examining Successful Career and Technical Education Efforts in Schools and Community Colleges Engaged in Educational or Whole School Reforms"

[5] ibid.

[6] Morgan V. Lewis, "Major Needs of Career and Technical Education in the Year 2000: Views from the Field"

[7] Debra D. Bragg, "The Community College and Beyond: A Longitudinal Analysis of Postsecondary Education and Employment Outcomes for Tech-Prep Participants and Non-Participants"

[8] Cass Dykeman, Michael Ingram, and Dale Pehrsson, "The Relationship of Career Development Interventions to Positive Student Outcomes"

[9] Dennis C. Scanlon, "Repository for Academic, Employability, and Skill Standards Information"

[10] Ruth Thomas, "Participation in Using Internet-Related Technology in Schools: Patterns, Opportunities, and Barriers"

[11] ibid.

[12] Ivan Charner and Robin White, "An Examination of Four Curriculum Integration Models"

[13] George Copa, "New Designs for Career and Technical Education at the Secondary and Postsecondary Levels"

[14] ibid.

[15] ibid.

[16] ibid.

[17] Karen Seashore and Lisa Jones, "Dissemination With Impact: What Research Suggests for Practice in Career and Technical Education"

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